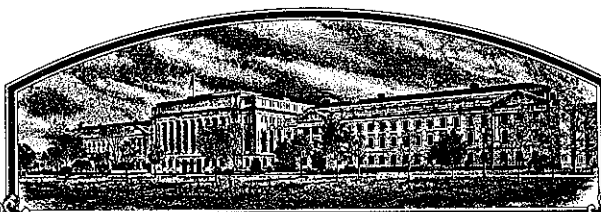


No.

8300105



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Nickerson American Plant Breeders, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS MUCH OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS PROVIDED BY THE OWNER OF THE RIGHTS. (34 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Wrangler'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 30th day of August in the year of our Lord one thousand nine hundred and eighty-five.

Attest:

Kenneth A. Egan
Commissioner
Plant Variety Protection Office
Livestock, Meat, Grain & Seed
Agricultural Marketing Service

John R. Blum
Secretary of Agriculture

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY HW77-361S19		1b. VARIETY NAME Wrangler		FOR OFFICIAL USE ONLY PV NUMBER 8300105	
2. KIND NAME Hard Red Winter Wheat		3. GENUS AND SPECIES NAME <u>Triticum aestivum</u>		FILING DATE 4/5/83	TIME 9:30 A.M. XXX
4. FAMILY NAME (BOTANICAL) Gramineae		5. DATE OF DETERMINATION 1) Sept. 1979 2) Sept. 1981		FEE RECEIVED \$ 1,000 \$ 500.00	DATE 4/5/83 8/7/85
6. NAME OF APPLICANT(S) NICKERSON North American Plant Breeders, INC.		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 5201 Johnson Dr., P.O. Box 2955 Mission, KS 66201		8. TELEPHONE AREA CODE AND NUMBER 913-384-4940 KS 303-532-3721 CO	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Partnership		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Stamford, CT		11. DATE OF INCORPORATION March 1973	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: <div style="display: flex; justify-content: space-between;"> <div> G.E. DIXON R.E. HEINER P.O. Box 2955 Mission, KS 66201 </div> <div> ROBERT F. BRUNS R.E. Heiner or C. Bruns P.O. Box 30 Berthoud, CO 80513 </div> </div>					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.
- ☒ 13E. Exhibit E. Quality Data and Supporting Statistical Data.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☐ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

March 14, 1983.
(DATE)

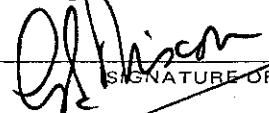

(SIGNATURE OF APPLICANT)

Exhibit A

Origin and Breeding History of Wrangler

PEDIGREE: II18889/Trapper//C0652643/3/Sonora/Trapper//Warrior

DATE OF CROSS: 1973

HISTORY: The breeding history of Wrangler started in 1973 with the cross of C0701411 (F₆) with C0695461 (F₆). This F₁ was increased in 1974, and grown as an F₂ population in 1975. Single rows of F₃ lines were grown in 1976 at 3 locations. One of these lines was advanced to yield trials in 1977. This line was given the testing designation HW77-361. In 1979, 300 headrows were grown in Berthoud, Colorado for purification purposes. There were many different segregates within these headrows. Wrangler is one of nineteen headrows that were selected individually and put into yield trials in 1980. It was designated HW77-361S19. Three hundred headrows were grown in 1981 and bulked for a large Breeders seed increase in 1982.

Wrangler is uniform and stable. Less than 1% of the plants were rogued from the Foundation fields in 1982. Approximately 90% of these rogued plants were three to twelve centimeters taller than Wrangler. Less than 1% of these taller plants may be encountered in subsequent generations.

Exhibit B

Novelty Statement

Wrangler is most similar to the hard red winter wheat Vona. However, it can be distinguished on the following morphological characteristics:

- Wrangler has a rounded shoulder shape. Vona has an oblique shoulder shape.
- Wrangler and Vona differ significantly in beak length; Wrangler's are longer. (See supporting data.)
- Wrangler has a blue-green plant color at boot stage; Vona has a green plant color.

Anova Table

Beak Length

<u>Variety</u>	<u>Mean</u>
Vona	3.64
Wrangler	9.06

<u>Source</u>	<u>df</u>	<u>ss</u>	<u>ms</u>
Total	209	1670.28	
VAR (beak)	6	756.05	126.01**
Error	203	914.23	4.50

F Test	28.00
LSD (.05)	1.08

Wrangler

FORM GR-470-6
(2-15-73)UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED. OMB NO. 40-R3712

EXHIBIT C
(Wheat)OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (TRITICUM SPP.)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

NICKERSON
North American Plant Breeders, INC.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

5201 Johnson Dr., P.O. Box 2955
Mission, KS 66201

FOR OFFICIAL USE ONLY

PVPO NUMBER

8300105

VARIETY NAME OR TEMPORARY
DESIGNATION

WRANGLER

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g., or) when number is either 99 or less or 9 or less.

1. KIND:

 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

 1 = SPRING 2 = WINTER 3 = OTHER (Specify) 1 = SOFT 2 = HARD 3 = OTHER (Specify) 1 = WHITE 2 = RED 3 = OTHER (Specify)3. SEASON - NUMBER OF DAYS FROM TO:FIRST FLOWERING planting LAST FLOWERING

4. MATURITY (50% Flowering):

 NO. OF DAYS EARLIER THAN 1 = ARTHUR 2 = SCOUT 3 = CHRIS
 NO. OF DAYS LATER THAN 4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT (From soil level to top of head):

 CM. HIGH
 CM. TALLER THAN 1 = ARTHUR 2 = SCOUT 3 = CHRIS
 CM. SHORTER THAN 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING (See reverse):

 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHUR COLOR:

 1 = YELLOW 2 = PURPLE

8. STEM:

 Anthocyanin: 1 = ABSENT 2 = PRESENT Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT NO. OF NODES (Originating from node above ground) Waxy bloom: 1 = ABSENT 2 = PRESENT Internodes: 1 = HOLLOW 2 = SOLID CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

 Anthocyanin: 1 = ABSENT 2 = PRESENT Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

 Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (Specify) Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT MM. LEAF WIDTH (First leaf below flag leaf) Flag leaf: 1 = NOT TWISTED 2 = TWISTED Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT CM. LEAF LENGTH (First leaf below flag leaf)

FORM GR-470-6 (REVERSE)

11. HEAD:

Density: 1 = LAX 2 = DENSE 3 = middense Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE
4 = OTHER (Specify) _____

Awedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED
5 = BROWN 6 = BLACK 7 = OTHER (Specify) _____

CM. LENGTH MM. WIDTH

12. GLUMES AT MATURITY:

Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.) Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.)
3 = WIDE (CA. 4 mm.)

Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED
4 = SQUARE 5 = ELEVATED 6 = APICULATE Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE ave. 9 mm

13. COLEOPTILE COLOR: 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN: 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT: 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL Cheek: 1 = ROUNDED 2 = ANGULAR

Brush: 1 = SHORT 2 = MEDIUM 3 = LONG Brush: 1 = NOT COLLARED 2 = COLLARED

Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN
4 = BROWN 5 = BLACK

Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

MM. LENGTH MM. WIDTH GM. PER 1000 SEEDS

17. SEED CREASE:

Width: 1 = 60% OR LESS OF KERNEL 'WINOKA'
2 = 80% OR LESS OF KERNEL 'CHRIS'
3 = NEARLY AS WIDE AS KERNEL 'LEMHI' Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT'
2 = 35% OR LESS OF KERNEL 'CHRIS'
3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3 = moderate resistant 4 = moderate susceptible

STEM RUST (Races) 15 & 151 LEAF RUST (Races) Field races STRIPE RUST (Races) LOOSE SMUT

POWDERY MILDEW BUNT OTHER (Specify) Soil Borne Mosaic Virus

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3 = moderate resistant

SAWFLY APHID (Bydv.) GREEN BUG CEREAL LEAF BEETLE

OTHER (Specify) _____ HESSIAN FLY RACES: GP A B C
 D E F G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Vona	Seed size	Vona
Leaf size	Vona	Seed shape	Vona
Leaf color	Vona	Coleoptile elongation	Vona
Leaf carriage	Vona	Seedling pigmentation	Vona

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

- (a) L.W. Briggie and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.
- (b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

Exhibit D

Additional Description

Wrangler is a hard red winter wheat tested as HW77-361S19. It was bred and developed by North American Plant Breeders.

Wrangler is an intermediate height semidwarf variety with very strong straw strength characteristics, early maturity and good winterhardiness. Milling and baking properties are good.

Juvenile plant growth habit is semi-erect. Plant color at boot is blue-green with an erect twisted flag leaf. Head shape is tapering, middense, awned and head color is white at maturity. Glumes are short with rounded shoulder shapes and long acuminate beaks. Seed shape is ovate with rounded cheeks.

Wrangler is a widely adapted line that is particularly valuable as an early maturing, good grazing wheat in the southern Kansas and Oklahoma areas. It should also fit into the double cropping potential in the eastern hard wheat areas.

North American Plant Breeders
HARD RED WINTER WHEAT QUALITY

YEAR: 1982

PAGE -1

YEAR	SAMPLE NAME	LOC	WHEAT--FLOUR QUALITY										BAKING QUALITY										MILL SCORE	BAKE SCORE	TOTAL SCORE
			TEST WT.	WHT PROT	FLR YLD	FLR PROT	FLR ASH	MIX CURVE	ABS. %	NIX TIME min	CHAR VOL	GRINR				MILL SCORE	BAKE SCORE								
												14%mb	%	14%mb	14%mb			R	%	R	cc	R			
81	HW77-361519	SO	62.3	13.7	70.3	12.6	0.349	3	64.0	4.5	3	930	7	3	3	93-A	83-B	176-B							
81	HW77-361519	LK	59.1	13.6	72.5	12.6	0.377	8	65.0	3.5	3	1000	8	3	3	91-A	95-A	106-A							
81	HW77-361519	HN	59.0	14.5	69.8	13.3	0.378	7	65.0	3.3	3	950	8	3	3	95-B	90-A	175-B							
81	HW77-361519	RR	61.6	13.4	72.7	13.0	0.392	7	65.0	2.5	3	860	9	3	3	92-A	88-B	178-B							
82	HW77-361519	EO	54.3	13.1	69.8	11.9	0.399	5	63.0	5.3	3	875	8	3	3	68-D	85-B	153-C							
82	HW77-361519	LK	60.3	13.6	69.8	11.7	0.443	8	65.0	4.0	3	923	8	3	3	86-B	90-A	176-B							
82	HW77-361519	CK	58.3	12.7	73.7	10.9	0.387	5	60.0	4.0	3	840	8	3	3	75-C	81-B	156-C							
	AVERAGE		59.2	13.5	71.2	12.3	0.383	7	63.9	3.9	3	897	8	3	3	87-B	87-B	174-B							
81	NEWTON	SO	61.8	11.9	68.5	11.1	0.400	7	61.0	3.5	3	790	8	3	3	75-C	80-B	155-C							
81	NEWTON	LK	56.8	13.5	69.8	12.3	0.449	7	62.0	3.0	3	1000+	8	3	3	73-C	90-A	188-B							
81	NEWTON	HN	59.3	11.5	70.4	10.5	0.383	6	59.0	3.5	3	875	8	3	3	72-C	78-C	150-C							
81	NEWTON	RR	62.0	12.5	73.4	12.0	0.388	5	63.0	2.0	3	810	7	3	3	83-B	77-C	162-B							
82	NEWTON	EO	52.7	13.0	63.3	11.7	0.385	5	61.0	4.5	3	950	9	3	3	53-F	88-B	147-C							
82	NEWTON	LK	59.3	12.1	69.8	10.9	0.397	6	62.0	4.0	3	750	7	7	3	72-C	79-C	150-C							
82	NEWTON	CK	56.2	11.5	70.3	10.1	0.397	5	60.0	4.3	3	830	8	3	3	63-D	81-B	144-C							
	AVERAGE		59.5	12.3	69.4	11.2	0.389	6	61.1	3.5	3	863	8	3	3	72-C	83-B	155-C							

GRADES: A-EXCELLENT B-GOOD C-ACCEPTABLE D-QUESTIONABLE F-UNACCEPTABLE
R-RATINGS: 9-10=EXCELLENT 8-GOOD 7=ACCEPTABLE 5-6=QUESTIONABLE 1-4=UNACCEPTABLE